

ABSTRACT OF THE DISCLOSURE

A multiphase composite material having utility as an electrochemical electrode or catalyst includes a first active phase which is an amorphous, electrochemically active material; and a second, stabilizer phase which includes one or more of: metals, carbon, ceramics, and intermetallic compounds. The stabilizer phase is configured as a plurality of spaced apart regions having the active phase disposed therebetween. The active phase may comprise one or more of: Sn, Sb, Bi, Pb, Ag, In, Si, Ge, and Al. The stabilizer phase may include one or more of: Fe, Zr, Ti, and C. Also disclosed are electrodes and batteries which include the material as well as methods for manufacturing the material by using a mechanical alloying process.